



ICUA 2026
International Conference on
Underwater Acoustics
15-18 June 2026, Glasgow

PROGRAMME



Welcome!

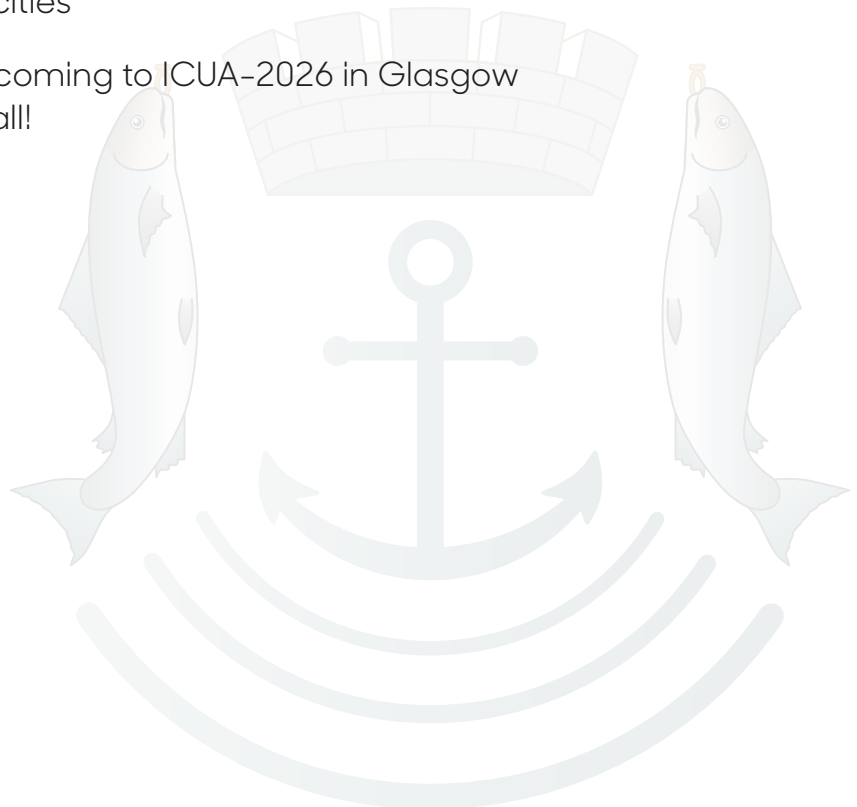
In 2024, the Institute of Acoustics organised the successful ICUA conference in Bath. The many advances in the field of underwater acoustics since then make it appropriate to hold another international conference to discuss the latest research and applications. We look forward to welcoming our friends and colleagues from all over the world to present their latest research.

The conference, which is taking place at the University of Strathclyde, is in the heart of Glasgow's city centre with a dynamic mix of stunning Victorian architecture, superb shopping on Buchanan Street, buzzing bars, and a thriving arts scene. Whether you are exploring iconic galleries, enjoying live music, or sampling top-notch cuisine, Glasgow offers the perfect blend of culture, creativity, and warm Scottish hospitality.

The University of Strathclyde is a leading international university located in the heart of Glasgow, Scotland. Founded in 1796, it's known for its strong focus on innovation, research, and practical learning.

With a diverse student population, Strathclyde offers top-ranked programs in engineering, business, science, and humanities, and is home to cutting-edge facilities like the Technology & Innovation Centre. Its central campus offers a vibrant student experience in one of the UK's most dynamic cities

We are delighted that you are coming to ICUA-2026 in Glasgow and we warmly welcome you all!



General Information

Catering

All refreshments will be available on Level 2 foyer. Lunch each day will be available on Level 2 foyer.

Speaker Preview

If you are a speaker, and you want to check or change your presentation, please go to the auditorium space that your session is in.

Posters

Posters will be located in the Chancellors' Building Foyer. Different posters will be displayed each day during the refreshment and lunch breaks.

Student Prizes

If you have ticked the box on the registration form your paper will be considered. The prize winners will be selected by a panel of judges consisting of ICUA2026 Committee members, based upon the originality, clarity and quality of research and its presentation. The prizes will be presented at the close of the conference on Thursday.

Quiet Space

A quiet room is available Conference room 8. When using this space please consider other users. No telephone calls please.

Social Programme

Monday 15 June - Welcome reception

Merchants House
7 West George Street, Glasgow G2 1BA
17:00 - 19:00

The doors of 7 West George Street are directly opposite Queen Street railway station a 1 minute walk or from Central Railway Station we are approximately a 7 minute walk.

Monday 15 June - Early Careers Group Event

Strathclyde Students' Union
51 Richmond Street, Glasgow, G1 1XU
17:00 - 19:00

Calling all Early-career attendees! Wrap up the day with a relaxed (and seriously fun!) social night at Strathclyde Students' Union. Enjoy unlimited pool, darts, and a tasty buffet while meeting colleagues and making new friends in a lively setting.

Wednesday 17 June - Conference Dinner

40 Wilson Street, Merchant City, Glasgow, G1 1HD
Reception 18:00
Dinner 19:00
Depart 00:00

Posters

MONDAY

Environmental emissions in impact pile driving using a Hybrid Semi-Analytical and Spectral-Element approach in range-dependent environments

Authors:

Daide Bittelli – Aix Marseille Univ., CNRS, Centrale Med, LMA, France

Khairina A. Canny – Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands

Paul Cristini – Aix Marseille Univ., CNRS, Centrale Med, LMA, France

Maxence Ferrari – Aix Marseille Univ., CNRS, Centrale Med, LMA, France

Vadim Monteiller – Aix Marseille Univ., CNRS, Centrale Med, LMA, France

Apostolos Tsouvalas – Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands

Yaxi Peng – Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands

Athanasios Tsetas – Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands

Nathalie Favretto-Cristini – Aix Marseille Univ., CNRS, Centrale Med, LMA, France

Subsea Soundscape in the Celtic Sea using a 21 station network

Authors:

Diego Miguez, Arne Vogler, Marie Kelly – ORE Catapult; Harrison Smith, Neil Farrington – CSP

Francesco Garzon, Matthew Witt – University of Exeter, UK

Beyond Single-Label Classification: A Large Scale Dataset for Reproducible AI Analysis of Passive Sonar

Authors:

Felix Ingham – University of Edinburgh, UK



SESSIONS

Tuesday 16 June

AUDITORIUM A	AUDITORIUM B	AUDITORIUM C
SEABED AND SEDIMENT ACOUSTICS	SIGNAL PROCESSING	AMBIENT OCEAN SOUND
RADIATED NOISE FROM SHIPS		METAMATERIALS

Wednesday 17 June

AUDITORIUM A	AUDITORIUM B	AUDITORIUM C
HACKATHON	MACHINE LEARNING IN UNDERWATER ACOUSTICS	MARINE RENEWABLES and PILE DRIVING
SCATTERING	UW COMMS	EFFECT OF SOUND ON MARINE LIFE
		BIOACOUSTICS AND BIOSONAR
		PASSIVE ACOUSTIC MONITORING
		SONAR PERFORMANCE MEASUREMENT AND MODELLING

Thursday 18 June

AUDITORIUM A	AUDITORIUM B	AUDITORIUM C
SONAR, VECTOR SENSORS & TRANSDUCER TECHNOLOGY	UNDERWATER PROPAGATION	SYNTHETIC APERTURE SONAR
POLAR ACOUSTICS		UNEXPLODED ORDNANCE

PROGRAMME

Tuesday 16th June

08:00–09:00 Registration and Refreshments

AUDITORIUM B & C

09:00 Welcome

09:10 **Keynote: Searching the ocean floor in high resolution using synthetic aperture sonar**

Roy Edgar Hansen

09:55 Refreshments

AUDITORIUM A

1. SEABED AND SEDIMENT ACOUSTICS

Chair: Zoi-Heleni Michalopoulou

10:25 **1) Seafloor Roughness Estimation Using Lloyd's Mirror-Like Interference Patterns**

Oleg A Godin, Ernst M Uzhansky, Tsuwei Tan – Naval Postgraduate School, Monterey

10:45 **2) Biosonar inspired geoacoustic inversion and Matched Field Processing: a comparative study**

Zoi-Heleni Michalopoulou – New Jersey Institute of Technology, USA

Jason Gaudette – Raytheon Technologies Portsmouth, USA

11:05 **3) Acoustic observations of a changing, heterogeneous seafloor over extended durations using temporal coherence**

Thomas Blanford, Jenna Hare, Anthony Lyons, Gabriel Venegas, Hailey Gilman – University of New Hampshire, USA

11:25 **4) Seafloor characterization in shallow water using Ship Noise recorded by DAS**

Hefeng Dong – Norwegian University of Science and Technology, Norway

11:45 **5) Gaussian process adaptive sampling for seabed identification from ambient sound**

John Lipor

12:05 **6) Bottom backscatter variability in the Strait of Georgia**

Nicholas P Chotiros – Applied Research Laboratories, the University of Texas at Austin, USA

12:25 Lunch

2. RADIATED NOISE FROM SHIPS

13:25 **7) AI Meets the Ocean: Predicting Ship Noise for Marine Mammals Protection**

Soukaina Boujdi, Loubna Benabbou, Pierre Cauchy – Université du Québec à Rimouski, Canada

13:45 **8) Validation and Application of an Underwater Radiated Noise Framework for Assessing Shipping Noise**

Akula Chaturvedi – ¹ Aerospace Engineering Department, Indian Institute of Technology Bombay, India; ² Hydrodynamics and Multiphysics Department, Indian Register of Shipping, Mumbai, India

Aniruddha Sinha, Avijit Chatterjee – ¹ Aerospace Engineering Department, Indian Institute of Technology Bombay, India

 Tuesday 16th June

14:05 9) Effect of speed reduction on underwater radiated noise of ships sailing on the Dutch North Sea

Fernanda Leticia dos Santos, Johan Bosschers, Thomas Lloyd, Marjolein Hermans – Maritime Research Institute Netherlands (MARIN), The Netherlands

14:25 10) Ship noise and the ocean environment

*Traci Neilsen, Dallin Harwood – Brigham Young University, Dept. Physics and Astronomy, USA
Ellen White, Jonathan Bull – University of Southampton, Dept. Earth and Ocean Sciences, UK*

14:45 Refreshments

3. RADIATED NOISE FROM SHIPS

15:05 11) Cavitation on High-Speed Propellers: Observations and Acoustic Measurements from Experimental Trials

Tom A Smith, Andrea Grech La Rosa – Dept. Mechanical Engineering, University College London, UK

15:25 12) A Standardised Approach to Ranking Underwater Sound Sources via Half-Space Sound Energy

Federico Campo – JASCO Applied Sciences, Schwentinal, Germany

15:55 13) Cavitation Noise Simulation of a Thruster Unit

V Viitanen, J Kapanen, A Hynninen – VTT Technical Research Centre of Finland

16:15 14) Experimental Investigation of Bubble Pinch-Off Dynamics Using Acoustic Measurements and High-Speed Visualisation

Yuncong Du, Tom Smith, Helen Czerski – Dept. Mechanical Engineering, University College London, UK

AUDITORIUM B

SIGNAL PROCESSING

Chairs: Nikolai Opdan & DD Olatinwo

10:25 15) Matched mode processing using opportunistic impulsive emissions during NREP 24 campaign

Florent Le Courtois, Lucas Delgado, Anais Barre, Leo Buatois, Guillaume Beaumont – DGA TN France; Myriam Lajaunie – Shom France; Gaultier Real – CMRE La Spezia

10:45 16) An AI-based Ship Type Classification method using DEMON Signal Processing

*Sam Meek – BAE Systems Submarines; Sam Coleman – BAE Systems Air
Contributions from: Pierre Moinier, Matty Boles, Daniel Elston – BAE Systems Air;
Olivia Whitehead, Jon Locke, Rob O'Leary – BAE Systems Submarines*

11:05 17) Experimental studies on the challenges in detecting ALDFG using sonar technology and advanced concepts for signal processing

Sabrina Lennartz – University of Applied Science, Ulm

11:25 18) Using J-divergence to model and optimize system-level sonar performance in clutter

D A Abraham – Applied Physics Laboratory, University of Washington, USA

12:55 19) Towards vessel detection and tracking across large regions using distributed acoustic sensing

Jack Poole, Philipp Anhaus, Angel Bueno Rodriguez, Maurice Stephan, Enno Peters – The German Aerospace Centre, the Institute for the Protection of Maritime Infrastructures, Germany

12:05 Lunch

Tuesday 16th June

SIGNAL PROCESSING

- 12:55** **20) Array shape calibration from ambient sound via the passive fathometer**
John Lipor
- 13:15** **21) Experimental validation of Relative Transfer Function-based data-driven MFP for source localisation in shallow water**
Baptiste Menetrier, Valérie Labat, Jean Lecoulant, Abdel Boudraa – Institut de Recherche et d'Études Navales (IRENav), France
Timothée Maison, Myriam Lajaunie – Service Hydrographique et Océanographique de la Marine (SHOM), France
Gnouregma Bazile Kinda – IRENav, and Direction Générale de l'Armement Techniques navales, France
- 13:25** **22) A Space-to-Depth Transformation and Multi-Scale Feature Learning Approach for Multi-Species Marine Mammal Whistle Detection and Classification**
D D Olatinwo – Faculty of Computer Science, Dalhousie University, Canada;
M L Seto – Faculty of Engineering, Dalhousie University, Canada
B Martin, M Thomas – JASCO Applied Sciences, Canada
- 13:45** **23) Assessing Distributed Acoustic Sensing sensitivity to active acoustics using sensors cross-comparison in shallow water**
Timothée Maison, Myriam Lajaunie – SHOM, France
Baptiste Menetrier, Jean Lecoulant, Valérie Labat – IRENav, École Navale, France
Thurian Le Dû – FOSINA, Nanterre, France
- 14:05** **24) Bayesian Occupancy Filter for Sonar-Based Detection and Tracking with Diffusion-Decay Motion Dynamics**
Nikolai Opdan, Kristoffer Engedal Andreassen, Stian Hartman – Norwegian Defence Research Establishment (FFI)
Karl Thomas Hjelmervik – University of South-Eastern Norway
- 14:15** **Refreshments**

SIGNAL PROCESSING

- 14:45** **25) Source localization using sparse and continuous matched mode dictionary for horizontal line array**
Florent Le Courtois – DGA TN, France; Myriam Lajaunie, Elodie Marches – Shom, France,
Bazile Kinda – DGA TN, France
- 15:05** **26) Near-Field Acoustic Source Localization: Analysis and Design of the Source Grid**
Camila M G Gussen, Angélique Drémeau – Lab-STICC, CNRS, ENSTA, Institut Polytechnique de Paris, France
Vincent Métais, Sylvain Busson – DGA Techniques Navales, Brest, France
- 15:25** **27) Using physically informed algorithms for DOA estimation in strongly varying environment: Application to the NREP24 data**
Guillaume Beaumont, Pauline Carmona, Florent Le Courtois – Gaultier Real, France
- 15:45** **28) Weakly Supervised Detection of Low Frequency Line Spectrum in Underwater Acoustics**
Mingke Zhang, Lei Bo – School of Marine Science and Technology, Northwestern Polytechnical University, China
- 16:05** **(29) Nearfield Subarray Beamforming with TDOAs Estimated with RANSAC in an Unknown Underwater Environment**
Elouan Even, Ville Pulkki – Department of Signal Processing and Acoustics, Aalto University, Finland

Tuesday 16th June

AUDITORIUM C

AMBIENT OCEAN SOUND

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| 10:25 | <p>30) From Soundscapes to Species: Citizen Science Insights into Marine Pollution and Biodiversity to Support UK Conservation Strategies</p> <p><i>Leah Weatherup, Prof. Fay Couceiro, Dr. Keiron Roberts, Dr. James Trayford</i></p> |
| 10:45 | <p>31) Operational underwater noise from spar-type floating wind turbines</p> <p><i>Harishankar Sivaprasad, Ardemia Acampora, Apostolos Tsouvalas, George Lavidas – Delft University of Technology, Netherlands</i></p> |
| 11:05 | <p>32) Ambient noise assessment of the Iceland-Faroe front area during the Narval 21 campaign</p> <p><i>Alexandre L'Her, Angélique Drémeau – Lab-STICC (UMR CNRS 6285), ENSTA, France</i>
<i>David Dellong, Pierre-Antoine Dumont, Yann Stéphan – Service Hydrographique et Océanographique de the Marine, France</i></p> |
| 11:25 | <p>33) Sounding out the River: an End-to-End Framework for Monitoring Bioacoustic Events and Sediment Movement in Freshwater Soundscapes</p> <p><i>Hadrien Helfgott, Matt Gervais, Emma Halliwell, Mark Naylor – University of Edinburgh, Scotland</i></p> |
| 11:45 | <p>34) Ambient noise measurements in the central Barents Sea</p> <p><i>Sean Pecknold – Gaultier Real Centre for Maritime Research and Experimentation, France</i></p> |
| 12:05 | <p>35) Monitoring underwater noise and bioacoustics in the Northern Portuguese coastal ocean</p> <p><i>Ana Bio, Cláudia Oliveira-Rodrigues, Ana Sanz, Mafalda Correia – CIIMAR, Interdisciplinary Centre of Marine and Environmental Research, Portugal</i></p> |
| 12:25 | <p>Lunch</p> |

AMBIENT OCEAN SOUND

- | | |
|-------|---|
| 13:25 | <p>36) Satellite enhanced numerical modelling of shipping and weather induced ambient underwater noise in a busy deep-water harbour</p> <p><i>Jingjing Yan, Thomas D G Benson</i></p> |
| 13:45 | <p>37) Fluid-Solid Coupling and Advanced Source Formulation in Shallow-Water Acoustics</p> <p><i>Ines Addeo, Marta Cianferra – University of Trieste, Department of Engineering and Architecture, Italy</i>
<i>Paul Cristini, Nathalie Favretto-Cristini, Vadim Montellier – Laboratory of Mechanics and Acoustics (LMA), Aix-Marseille University, CNRS, France</i></p> |
| 14:05 | <p>38) What is an octave?</p> <p><i>Michael A Ainslie – JASCO Applied Sciences, Schwentinental, Germany</i>
<i>Stephen P Robinson – National Physical Laboratory, United Kingdom</i>
<i>Richard Barham – Acoustic Sensor Networks Ltd., United Kingdom</i></p> |

METAMATERIALS

- | | |
|-------|--|
| 14:45 | <p>39) Numerical Optimization of SF5048 Viscoelastic Dampers for High-Frequency Underwater Acoustic Applications</p> <p><i>Hasan Arda Gürer</i></p> |
| 15:05 | <p>Refreshments</p> |

Tuesday 16th June

METAMATERIALS

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- 15:35** **40) Experimental acoustic and vibratory study of periodic macro-inclusionary panels made of tiles for underwater acoustics**
Clément Larcade, Charles Croënne, Florian Allein, Thomas Humbert, Anne-Christine Hladky-Hennion – University Lille, CNRS, France
Laetitia Roux – Naval Group, France
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- 15:55** **41) Transmission Optimization and Dispersion Analysis of Immersed Acoustic Metamaterials for Underwater Noise Reduction**
Juliette Kessler – Université de Lille, CNRS, France; and Greenov-ITES, France
Charles Croënne, Anne-Christine Hladky-Hennion, Florian Allein – Université de Lille, CNRS, France
Erwan Meteyer – Greenov-ITES, France
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- 16:15** **42) Enhancing ultrasonic pulse transmission through high-impedance barriers using an input impedance-matching metamaterial**
Chankyu Kim†, Junyong An, Wonju Jeon – Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Republic of Korea
-
- 16:35** **43) Realization of a triple-negative complementary meta-structure for ultrasonic pulse transmission through elastic barriers**
Wonju Jeon1†, Ki Yong Lee, Chankyu Kim – Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Republic of Korea*
-
- 16:55** **44) Broadband Underwater Acoustic Absorption Using a Tilted Cylindrical Inclusion in a Simplified Coating Design**
Vineeth P R, Rashu Shaik – DRDO Young Scientists' Laboratory for Smart Materials, India
Honey Veer Singh, D P Jena – Department of Industrial Design, National Institute of Technology, India
Bhajan Singh – Department of Physics, School of Basic Sciences, Central University of Punjab, India
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- 17:15** [Close](#)

Wednesday 17th June

08:00–08:40 Registration & Refreshments

AUDITORIUM A

4: HACKATHON

Chair: Alan Hunter

08:40 45) Hackathon Sessions
Organised by UKAN

09:00 46) Hackathon

09:20 47) Hackathon

09:40 48) Hackathon

10:00 49) Hackathon

10:20 Refreshments

5: HACKATHON

Chair: Alan Hunter

10:50 50) Hackathon

11:10 51) Hackathon

11:30 52) Hackathon

11:50 53) Hackathon

12:10 54) Hackathon

12:30 Lunch

6: SCATTERING

Chair: TBC

13:30 55) Target Echo Strength (TES) Measurements of TESSMEX targets at Loch Goil
Keith Page and Justin Basham

13:50 56) TES Modelling of TESSMEX Objects M32 and M32T using various techniques
Elizabeth M Chilvers – QinetiQ

14:10 57) Elastic Scattering Plugins for the OpenSTB Sonar Simulator
Camilo A Hurtado E – Royal Military Academy, Belgium

14:30 58) Spatial phase and related correlation analysis on the acoustic scattering of a vortex beam from an arbitrarily-located sphere
Liwei Chen – School of Ocean and Civil Engineering, Shanghai Jiao Tong University, China
Jun Fan, Zhixiong Gong – School of Ocean and Civil Engineering, Shanghai Jiao Tong University, China;
Key Laboratory of Marine Intelligent Equipment and System, Ministry of Education, China

14:50 59) Comparisons of the small slope approximation, small roughness perturbation approximation, and the tangent plane approximation to integral equation methods for wave scattering from rough surfaces
Derek R Olson – Naval Postgraduate School, USA

 Wednesday 17th June

 15:20 Refreshments

AUDITORIUM B

4. MACHINE LEARNING IN UNDERWATER ACOUSTICS

 Chairs: Tyme Perret & Arnaud Calin

- 08:40 **60) Exploring the submerged valley of lake Guerlédan using multibeam echosounder watercolumn data and a deep learning network**
T Perret – Geo-Ocean UMR 6538, France
I Mopin, H Moreau – LAB-STICC UMR 6285, ENSTA, France
- 09:00 **61) SparseUNet: Integrating Non-Negative Matrix Factorization Priors with Deep Learning for Reverberation Suppression**
Xiang Pan, Haoran Wang, Shuhao Zheng, Jianbo Jiao
- 09:20 **62) Curation and Augmentation of Hydrophone Data for AI-Based Vessel Classification**
Karl Thomas Hjelmervik and Yohann Gourret – University of South-Eastern Norway
- 09:40 **63) Robust automatic classification of hydroacoustic signals by source type**
Hugo Fauvel – ¹CEA, DAM, DIF, France; ²ENSTA, CNRS, Lab-STICC, Institut Polytechnique de Paris, France; ⁴Univ Brest, CNRS, Ifremer, IUEM, Geo-Ocean, France
Sentia Oger, Julien Vergoz – ¹CEA, DAM, DIF, Arpajon, France
Dorian Cazau – ²ENSTA, CNRS, Lab-STICC, Institut Polytechnique de Paris, France
Olivier Hyvernaud, Sara Bazin – ⁴Univ Brest, CNRS, Ifremer, IUEM, Geo-Ocean, France
- 10:00 **64) Comparing image-based and deep learning contact-based change detection for sonar images**
Yannik Steiniger, David Brandt – German Aerospace Center (DLR) – Institute for the Protection of Maritime Infrastructures

 10:20 Refreshments

5: MACHINE LEARNING IN UNDERWATER ACOUSTICS

 Chairs: Tyme Perret & Arnaud Calin

- 10:50 **65) Refining expert annotation for echogram semantic segmentation : a method based on pseudo-labels, confidence maps, and acoustic criteria.**
Arnaud Calin, Gilles Le Chenadec, Irène Mopin – ENSTA, Lab-STICC, France
Laurent Berger – Service Acoustique Sous-marine et Traitement de l'Information, Centre IFREMER, France
Mathieu Doray – UMR DECOD, France
Tarek Hattab – MARBEC (Marine Biodiversity Exploitation and Conservation), Univ Montpellier, CNRS, IFREMER, France
- 11:10 **66) Few-Shot Underwater Acoustic Ship Identification with Spectrogram-Based Deep Embeddings**
Lucas C F Domingos, Russell Brinkworth – College of Science and Engineering, Flinders University, Australia
Paulo E Santos – Research and Development, Priori Analytica, Australia
Karl Sammut – College of Science and Engineering, Flinders University, Australia; and Centre for Defence Engineering Research and Training, Flinders University, Australia
- 11:30 **67) A deep learning method for unsupervised Distributed Acoustic Sensing data exploration in the Arctic Ocean**
Calder Robinson, Martin Landrø, Léa Bouffaut

Wednesday 17th June

11:50 **68) Simulating the Acoustic Wave propagation using PINNs: Analysis of the Training Hyperparameters**
L Mauguen, S Rakotonarivo – Aix Marseille Université, CNRS, Laboratory of Mechanics and Acoustics, France
G Le Chenadec – ENSTA, Lab-STICC, Brest, France

12:10 **69) Explainability Analysis of a Deep Learning Network for Dolphin Detection in Passive Acoustic Monitoring**
Joachim Vanneste

12:30 **Lunch**

6. MACHINE LEARNING IN UNDERWATER ACOUSTICS

Chairs: Tyme Perret & Arnaud Calin

13:30 **70) Neural actualization of 4-D Ocean Sound Speed Fields from Sparse Observations**
Oscar Chapron, Yann Stéphan – Shom, France
Ronan Fablet – IMT Atlantique, UMR CNRS Lab-STICC, France

13:50 **71) Acoustically-Constrained Neural Compression of 4D Ocean Sound Speed Fields using State-of-the-Art Learned Image Coding**
Gauvrit Oscar, Fablet Ronan – IMT Atlantique, UMR CNRS Lab-STICC, France; INRIA team Odyssey, France
Yann Stéphan – Shom, France

14:10 **72) Automated Detection of Anomalous Hydrophone Data Using Self-Supervised Machine Learning**
Spencer Bialek

14:30 **73) Machine-Learning-Driven Event Detection for Distributed Acoustic Sensing in the Western Ionian Sea**
Flavia Grenga – Università di Palermo, Italy; CSFNSM (Centro Siciliano di Fisica Nucleare e di Struttura della Materia), Italy
Alessia Tricomi, Elena Geraci – CSFNSM (Centro Siciliano di Fisica Nucleare e di Struttura della Materia), Italy; Dipartimento di Fisica e Astronomia, Università di Catania, Italy
Idrissi Abdelghani – Dipartimento di Fisica e Astronomia, Università di Catania, Italy; INFN Laboratori Nazionali del Sud, Italy
Giorgio Riccobene, Salvatore Viola – CSFNSM (Centro Siciliano di Fisica Nucleare e di Struttura della Materia), Italy; INFN Laboratori Nazionali del Sud, Italy

14:50 **74) Title Neural Radiated Noise Fields for UUV Spectrum Prediction in Shallow-Water Waveguides**
Yan Wu, Yang Yang, Jun Fan, Bin Wang – Shanghai Jiao Tong University, China

15:10 **Refreshments**

UW COMMS

Chair: x

15:40 **75) Robust Underwater Acoustic Communication Using Machine Learning-based Noise Suppression and Adaptive Modulation**
Dr Noushin Karimian – Department of Engineering, Manchester Metropolitan University, UK
Dr Shokrollah Karimian – School of Electrical Engineering, Shahid Beheshti University

16:00 **76) The Multiple-LFM Based Data Transmission in Very Shallow-Water Acoustic Channel**
Iwona Kochanska, Jan H Schmidt, Aleksander M Schmidt

Wednesday 17th June

AUDITORIUM C

4. MARINE RENEWABLES AND PILE DRIVING

Chair: Khairina Canny

- 08:40** **77) Particle motion from submerged impact pile driving**
Ardemia Acampora, Harishankar Sivaprasad, George Lavidas, Apostolos Tsouvalas – Delft University of Technology
- 09:00** **78) Comparison between line-source and point-source propagation models in underwater radiated sound from marine piling**
*Michael A Wood – JASCO Applied Sciences, United Kingdom
 Michael A Ainslie – JASCO Applied Sciences, Schwentimental, Germany*
- 09:20** **79) Noise Mitigation Systems: Do Pulse Extension Units Affect Offshore Pile-Driving Noise?**
Patrick Remmers, Julian Härtel, Jonas Klug, Nico Abraham, Michael A Bellmann, itap – Institut für technische und angewandte Physik GmbH
- 09:40** **80) The Relative Influence of Sediment Type and Water Depth on Underwater Noise Propagation Predictions**
Issy Morgan
- 10:00** **81) A Semi-Analytical and Spectral-Element Framework for Modeling of Mid- to Far-Field Wave Propagation in Pile Driving**
- 10:20** **Refreshments**
- 10:50** **82) Underwater Radiated Noise Assessment of a Floating Offshore Wind Farm**
Tiago Teles
- 11:10** **83) Low Frequency Sound Propagation in Shallow Water for Offshore Pile-Driving and UXO Clearance Noise: An Operational Hybrid Prediction Framework**
Julian Härtel, Patrick Remmers, Aenne Stennes, Ahmad Hijazi, Michael A Bellmann, itap – Institut für technische und angewandte Physik GmbH

5. EFFECT OF SOUND ON MARINE LIFE

- 11:30** **84) SEASOUNDS 2026: Sea what we've been up to!**
*Nathalie Favretto-Cristini, Karan Manoj, Vassilis Tzirakis – Aix Marseille Univ, CNRS, Centrale Med, LMA, France
 Fawad Ali, Annaís Soares Texeira – Department of Geosciences, University of Padua, Italy
 Khairina Canny – Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands
 Nicole El Haddad – Department of Ecoscience, Aarhus University, Denmark
 Lihué Gaffoglio – Université Côte d'Azur, CNRS, Observatoire de la Côte d'Azur, IRD, CEREMA, France
 Calder Robinson – SFI Center for Geophysical Forecasting, Faculty of Computer Science and Electrical Engineering, NTNU – Norwegian University of Science and Technology, Norway
 Bassel Tabaja – Laboratori d'Aplicacions Bioacústiques, Universitat Politècnica de Catalunya – Barcelona Tech, Spain
 Léa Yeromonahos – Department of Geosciences, Faculty of Engineering, NTNU, Norwegian University of Science and Technology, Norway*
- 11:50** **85) Acoustic impacts of shipping in Arctic whale corridors**
Ph. Blondel, S Hain, K Lavis – Department of Physics, University of Bath, UK

12:30 **Lunch**

Wednesday 17th June

6. BIOACOUSTICS AND BIOSONAR

Chair: Paul Lepper

- 13:30** **86) Evaluating Underwater Binaural Cue Synthesis through Over-Ear and Bone-Conduction Headphones**
Sebastian Escamilla García, Ville Pulkki – Department of Signal Processing and Acoustics, Aalto University, Finland
- 13:50** **87) Transpolar songs: comparisons of bowhead whale vocalisation activity between the Nansen Basin and Canada Basin**
Jonathan Cleverly, Philippe Blondel – Department of Physics, University of Bath, Bath, UK
Hanne Sagen and Espen Storheim – Nansen Environmental and Remote Sensing Center, Bergen, Norway
Matthew Dzieciuch – Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography, University of California, USA

7. PASSIVE ACOUSTIC MONITORING

- 14:30** **88) Field Validation of Hydrotwin for Automated Vessel and Dolphin Detection**
Joachim Vanneste
- 14:50** **89) Effects of eutrophication on the biophony produced by *E. densa***
D Walker, S Frei Aquatic, ETHM Peeters – Aquatic Ecology and Water Quality Management, Wageningen University and Research, The Netherlands
I Roessink – Environmental Risk Assessment Group, Wageningen University and Research, The Netherlands
- 15:10** **Refreshments**

7. SONAR PERFORMANCE MEASUREMENT AND MODELLING

- 15:40** **90) Robust area surveillance with forward-looking sonar: an interval-based approach for diver detection**
Raphaël Vasseur – Technology Innovation Institute (TII), United Arab Emirates; and Lab-STICC – UMR CNRS 6285, ENSTA, Institut Polytechnique de Paris, France
Isabelle Quidu – Lab-STICC, UMR CNRS 6285, ENSTA, Institut Polytechnique de Paris, France
Tiago Trocoli, Jeremy Nicola – Technology Innovation Institute (TII), United Arab Emirates
- 16:00** **91) Inverting the sound speed profile from reverberation features**
S T H Hartman – Norwegian Defence Research Establishment (FFI), Norway
- 16:20** **92) Membrane-Based Vibro-Acoustic Noise Mitigation in Fluid-Loaded Cylindrical Marine Structures**
Dr Rab Nawaz, COMSATS University Islamabad, Pakistan

Thursday 18th June

08:00–08:40 Registration & Refreshments

AUDITORIUM A

8. SONAR, VECTOR SENSORS & TRANSDUCER TECHNOLOGY

Chair: Harris Nikolaou

- 08:40** **93) Pressure Sensitivity and Directionality of Distributed Acoustic Sensing**
Oleg A Godin – Naval Postgraduate School, Monterey
-
- 09:00** **94) Characterisation of Acoustic Vector Sensors for Underwater Particle Motion Measurements**
Charalampos (Harris) Nikolaou, Emily Edge, Freya Malcher, Stephen Robinson – National Physical Laboratory (NPL)
Paul Lepper – Loughborough University
-
- 09:20** **95) A multichannel linear array for real-time detection and analysis of marine sound sources**
Jonathan M. Bull – ¹ School of Ocean and Earth Science, University of Southampton, UK
Paul White – ² Institute for Sound and Vibration Research, University of Southampton, UK
Rosie Allen, Jonathan Farr, Lachlan Davies, Ellen White – ¹ School of Ocean and Earth Science, University of Southampton, UK; ² Institute for Sound and Vibration Research, University of Southampton, UK
Olivia Whitehead, Samuel Meek, Jon Locke, Rob O’Leary – ³ BAE Systems Submarines, UK
Terry Edwards, John Peters – ⁴ RSAqua Ltd, Port Solent, UK
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- 09:40** **96) Closed-loop control of plane wave reflection in a cylindrical waveguide**
William Slater – Underwater Sound Reference Division, Naval Undersea Warfare Center (NUWC), USA
Steven Crocker, James Miller, Gopu Potty – Dept of Ocean Engineering, University of Rhode Island, USA
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- 10:00** **97) Distributed Acoustic Sensing Measurements from a seafloor Fibre Optic cable Offshore Oregon**
S A Horne, F Stanek – Silixa Ltd, UK
A Stork – AtkinsRéalis, UK
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- 10:20** **Refreshments**

9. SONAR, VECTOR SENSORS & TRANSDUCER TECHNOLOGY

Chair: Harris Nikolaou

- 10:50** **98) Measurement and Characterisation of an ADD in a High Tidal Flow Environment**
Millie Walton, Simon Stephenson, Charlotte Holdsworth-Swan, Shireen Bhalla, Rosie Donaghy, Robert Lee, Daniel Jervis, James Morrish
-
- 11:10** **99) Underwater MEMS acoustic vector sensors for operation near resonance**
Justin Ivancic – United States Naval Academy, Annapolis, VA, USA
Dragoslav Grbovic, Fabio Alves – Naval Postgraduate School, Monterey, CA, USA
-
- 11:30** **100) Long-term, multi-sensor studies in acoustical oceanography using Ocean Networks Canada’s infrastructure**
Lanfranco Muzi – Ocean Networks Canada, University of Victoria, Canada
David R Barclay, David Hughes, Brendan Smith – Department of Oceanography, Dalhousie University, Canada
Nicholas Durofchalk, Kay L Gemba – Department of Physics, Naval Postgraduate School, USA

 Thursday 18th June

11:50 **101) Performance Evaluation of Emerging Piezoelectric Materials for Underwater Sonar Transducers and Hydrophones**

Anant Shah, Mandeep Dhooper, Hannan Khurshid – Ultra Maritime

12:30 **Lunch**

10. POLAR

Chair: Jonathan Cleverly

13:30 **102) Comparison between distributed acoustic sensing, hydrophones and geophones for ship detection in an Arctic fjord**

Léa Yeromonahos

13:50 **103) Simulation of acoustic reflection from a sea water ice sheet in the laboratory**

*Nicholas P. Chotiros – Applied Research Laboratories, The University of Texas at Austin, USA
Gaye Bayrakci, Emma Gregory – National Oceanography Centre, UK*

14:10 **104) Observation of surface reflection loss in the Greenland Sea marginal ice zone from broadband acoustic transmissions**

F Hunter Akins – NATO STO CMRE, Italy

14:30 **105) A model for underwater acoustic propagation in the marginal ice zone**

Gaultier Real, Sean Pecknold – NATO STO CMRE, Italy

14:50 **106) Spice and Tilt of the Barents Sea Polar Front and their effects on underwater acoustic propagation**

*Alexandre L'Her – Lab-STICC and ENSTA, IP Paris, France
Gaultier Real, Tommaso Fabbri, Sean Pecknold – NATO STO CMRE, Italy*

15:10 **107) Earthquake signal detection in spectrograms of Arctic hydrophone recordings**

*Jonathan Cleverly, Philippe Blondel – Department of Physics, University of Bath, UK
Marianna Anichini, Mathilde B Sørensen – Department of Earth Science, University of Bergen, Norway
Hanne Sagen and Espen Storheim – Nansen Environmental and Remote Sensing Center, Norway
Matthew Dzieciuch – Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography, University of California, USA*

15:30 **Refreshments**

11. POLAR

Chair: Jonathan Cleverly

15:50 **108) Acoustic propagation of vortex beams in typical polar underwater environment**

*Chengjun Wang – State Key Laboratory of Ocean Engineering, School of Ocean and Civil Engineering, Shanghai Jiao Tong University, China; Hanjiang National Laboratory, China
Jun Fan, Zhixiong Gong – State Key Laboratory of Ocean Engineering, School of Ocean and Civil Engineering, Shanghai Jiao Tong University, China; Key Laboratory of Marine Intelligent Equipment and System, Ministry of Education, China
Lisheng Zhou – Hanjiang National Laboratory, China*

16:15 **AUDITORIUM C: Close & Student Prizes**

Thursday 18th June

AUDITORIUM B

8. UNDERWATER PROPAGATION

Chair: Pascal de Koster & Jan Abshagen

- 08:40** **109) Uncertainties in the source and environment description: influence on noise impact assessment**
Vasileios Tzirakis, Paul Cristini, Vadim Monteiller, Nathalie Favretto-Cristini – Aix Marseille Univ, CNRS, France
- 09:00** **110) Investigation of several numerical approaches for solving the wave propagation problem in an elastic Pekeris waveguide**
Marion Tinguely – Aix Marseille University
Co authors: Paul Cristini, Nathalie Cristini-Favretto – Aix Marseille University
Xavier Cristol – Thales DMS, France
- 09:20** **111) Accelerating modal propagation modelling using physics-informed neural networks**
Antoine Blachet, Xavier Cristol – Thales France
- 09:40** **112) Surrogate modelling for fast propagation loss predictions**
Pascal de Koster, Giovanni Meles – The Netherlands Organisation for Applied Scientific Research
- 10:00** **113) Sound signal propagation in a coastal wedge. Vertical modes and space-time horizontal rays**
Alexander Kaplun, Boris Katsnelson – University of Haifa, Israel
- 10:20** **Refreshments**

9. UNDERWATER PROPAGATION

Chair: Pascal de Koster & Jan Abshagen

- 10:50** **114) Manifestation of horizontal refraction in the LFM signal propagation in shallow water in the presence of nonlinear internal waves**
Denis Manulchev, Aleksandr Kaplun and Boris Katsnelson – University of Haifa, Israel
- 11:10** **115) Retrieval of modal dispersion curves in shallow water by correlation analysis of noise on two vertical arrays**
Marina Yarina, Boris G. Katsnelson – University of Haifa, Israel
Oleg A Godin – Naval Postgraduate School, Monterey, USA
- 11:30** **116) How can full-wave simulations help interpret ultra-low frequency OBS recordings in a shallow water environment?**
*Loretta Bardavid, Nathalie Favretto-Cristini, Paul Cristini, Vadim Monteiller, Maxence Ferrari –
¹ Aix Marseille University, CNRS, Centrale Med, France*
Bazile G. Kinda – ² Direction Générale de l'Armement / Techniques navales, BCRM Brest, France
Xavier Demoulin – ³ MAREE, Parc Technologique de Soye, France
Myriam Lajaunie – ⁴ SHOM – Service Hydrographique et Océanographique de la Marine, France
- 11:50** **117) Optimizing 3D Seismo-Acoustic Wave Propagation Modeling for Higher Frequencies: HPC Efficiency and Memory Gains**
Maxence Ferrari, Vadim Monteiller, Paul Cristini, Nathalie Favretto-Cristini – Aix Marseille University, CNRS, France
- 12:10** **118) Modeling underwater noise pollution and seabed vibrations using a 3D full-wave method and HPC**
Nathalie FAVRETTO-CRISTINI, Vadim MONTEILLER, Maxence FERRARI, Paul CRISTINI – Aix Marseille University, France

Thursday 18th June

12:30 Lunch

10. UNDERWATER PROPAGATION

Chair: Pascal de Koster & Jan Abshagen

13:30 **119) Short-Range and Vertical Propagation of Very Low Frequency Sound in Shallow Sea Channels**

Xavier CRISTOL, Nathan IVKOVIC – Thales Defence Mission Systems, France

13:50 **120) Sound Propagation Experiments in Very Shallow Waters**

Jan Abshagen, Christian Haak – Bundeswehr Technical Center for Ships and Naval Weapons, Maritime Technology and Research (WTD 71), Germany

14:10 **121) Some aspects of the Doppler Effect in Acoustic Waveguides**

DJW Hardie, M Stirland, D Nigro – Thales Underwater Systems, UK

I D Abrahams FRSE – Department of Applied Mathematics and Theoretical Physics (DAMPT), University of Cambridge, UK

14:30 **122) Nonlinear warping to isolate refractive mode contributions for robust waveguide invariant based ranging in shallow water environments.**

Daehwan Kim and Sung-Hoon Byun

14:50 **123) Acoustic Sound Propagation in the Navy Acoustic Effects Model (NAEMO)**

Kevin Nelson

15:10 Refreshments

11. UNDERWATER PROPAGATION

Chair: Pascal de Koster & Jan Abshagen

15:30 **124) Range-Independent Sparse Environmental Models for Ocean Acoustic Tomography**

Adam Woolley – Thales Underwater Systems, UK

16:15 AUDITORIUM C: Close & Student Prizes

 Thursday 18th June

AUDITORIUM C

8: SYNTHETIC APERTURE SONAR

Chair: Frank Bobe

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| 08:40 | 125) Contrastive Learning for Synthetic Aperture Sonar Pattern Recognition with Vision Transformers
<i>Gregory D Vetaw, Frank E Bobe III – Naval Surface Warfare Center Panama City Division, USA</i>
<i>Darshan Bryner – Naval Surface Warfare Center Panama City Division, USA</i> |
| 09:00 | 126) Differentiable Path Tracing for Simulation of Sidescan Sonar Data
<i>David Brandt, Yannik Steiniger, Sarah Barnes, Frank Sill Torres – German Aerospace Center (DLR) – Institute for the Protection of Maritime Infrastructures, Germany</i> |
| 09:20 | 127) Impact of Angular and Sound Speed Errors on Time Delay Estimation
<i>Sudhanshu Apte, Blair Bonnett, Thomas Fickenscher – Medical Engineering, Helmut Schmidt University, Hamburg, Germany</i>
<i>Holger Schmaljohann – Bundeswehr Technical Center for Ships and Naval Weapons; Maritime Technology and Research (WTD 71), Germany</i> |
| 09:40 | 128) Analysis of Speckle in Synthetic Aperture Sonar Imagery
<i>Jim Prater, Darshan Bryner – Naval Surface Warfare Center, Panama City Division</i> |
| 10:00 | 129) Self-Supervised Pre-Training Using Masked Autoencoders and Shallow Bayesian Vision Transformers for Synthetic Aperture Sonar Artifact Classification
<i>Marko Orescanin, Derek Olson, Sean Courtney, Eric Eckstrand – Naval Postgraduate School, Monterey CA, USA</i>
<i>Marc Geilhufe, Norwegian Defence Research Establishment (FFI), Norway</i> |
| 10:20 | Refreshments |

9: SYNTHETIC APERTURE SONAR

Chair: Frank Bobe

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|-------|---|
| 10:50 | 130) Application of Polar Fourier Transform for Circular Synthetic Aperture Sonar
<i>Malte Sommer, Stig Asle Vaksvik Synnes, Tom-Ruben Traavik Kvalvaag, Roy Edgar Hansen</i> |
| 11:10 | 131) Evaluating SAS Image Focus Quality: A Benchmark Comparison of Quantitative Metrics
<i>Diego Cesar</i> |
| 11:30 | 132) A Comparison of Augmentation Techniques for Training Neural Networks for Synthetic Aperture Sonar
<i>C J Moore, Jordan M Malof – University of Missouri, USA</i>
<i>Greg Vetaw – Naval Surface Warfare Center Panama City Division, USA</i> |
| 11:50 | 133) A draft standard for SAS data sharing
<i>Jim Prater – Naval Surface Warfare Center Panama City Division; Vice-chair, synthetic aperture sonar working group, IEEE Synthetic Aperture Standards Committee</i>
<i>Blair Bonnett – Medical Engineering, Helmut Schmidt University, Germany</i> |
| 12:10 | 134) How I Learned to Stop Worrying and Love Uncalibrated Sonar (on uncrewed platforms)
<i>Anthony P Lyons – University of New Hampshire, USA</i> |
| 12:30 | Lunch |

Thursday 18th June

10: SYNTHETIC APERTURE SONAR

Chair: Frank Bobe

- 13:30** **134) On the insertion of computer-generated objects in synthetic aperture sonar.**
Fraser Hughes, Andrew Carruthers and Samantha Dugelay – Thales Underwater Systems
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- 13:50** **135) Comparison of predicted and measured image quality in synthetic aperture sonar data**
Marc Geilhufe, Roy E Hansen, Stig A V Synnes – Norwegian Defence Research Establishment (FFI), Norway
Derek Olson – Naval Postgraduate School, Monterey CA, USA

11: UNEXPLODED ORDNANCE

Chair: Karan Manoj

- 14:30** **136) Simulation of the underwater detonation of UXO on a seabed**
Karan Manoj, Nathalie Favretto-Cristini, Paul Cristini – Aix Marseille University, France
Michel Arrigoni – ENSTA IRDL
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- 14:50** **137) Lightweight YOLO-Based Munition Detection in Sonar Imagery**
Denitsa Dimitrova, RMA – Royal Military Academy, Belgium
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- 15:10** **138) Influence of Noise Floor on Acoustic Metrics from Underwater UXO Disposal**
Rosie Donaghy, Simon Stephenson, Charlotte Holdsworth-Swan, Shireen Bhalla, Millie Walton,
Robert Lee, Daniel Jervis
-
- 15:30** **Refreshments**

16:15 **Close & Student Prizes**

